



JUN 23 9 39 AM '99

WASTE MANAGEMENT
DIVISION

June 21, 1999

Mr. Chuck Schwer
Vermont ANR/DEC
Waste Management Division
103 South Main Street / West Building
Waterbury, VT 05671

**RE: University Exxon, Spear Street and Williston Road, South Burlington, VT
VTDEC Site #98-2472**

Dear Mr. Schwer:

Please find a copy of the Limited Site Investigation report for the above-referenced site. This report has been prepared by Griffin International, Inc. and forwarded to your attention on behalf of Wesco, Inc. All work was conducted in accordance with Griffin's January 28, 1999 Work Plan and Cost Estimate (approved by Mr. Schwer in a letter dated February 1, 1999).

Please contact me if you have any questions.

Sincerely,

Trina L. Cysz
Environmental Scientist

Enclosure

Cc: Wesco, Inc.
Griffin Project #79841301

**LIMITED SITE INVESTIGATION OF
SUBSURFACE PETROLEUM CONTAMINATION AT
UNIVERSITY EXXON**

JUNE 1999

Site Location:

**University Exxon
(Former Chittenden Bank)
Intersection of Williston Road and Spear Street
South Burlington, VT**

**VTDEC SITE #98-2472
GI Project # 79841301**

Prepared For:

**Wesco Inc.
32 San Remo Drive
South Burlington, VT 05403**

Prepared By:



P.O. Box 943 / 20 Commerce Street Williston, VT 05495 (802) 865-4288

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I. INTRODUCTION

This report summarizes the initial investigation of subsurface petroleum contamination at the University Exxon facility (former site of Chittenden Bank) located at the intersection of Williston Road and Spear Street in South Burlington, VT (see location map in Appendix A). This investigation was conducted by Griffin International, Inc. (Griffin) for Wesco, Inc. (Wesco). Investigative efforts at the site were conducted due to the discovery of an unknown underground storage tank (UST) during construction of a gasoline facility on July 15, 1998. This investigation was conducted to define the extent and degree of residual petroleum contamination remaining in the subsurface at the site. The investigation consisted of the following tasks:

1. The installation of one groundwater monitoring well (MW-1).
2. Groundwater sample collection from the monitoring well to characterize the degree of groundwater contamination in the former source area.
3. A survey of potential sensitive receptors in the vicinity of University Exxon.
4. Preparation of a summary report (this document).

The Vermont Department of Environmental Conservation (VTDEC) requested that this work be completed in a letter to Mr. William Simendinger from Mr. Chuck Schwer of the VTDEC, dated December 11, 1998. All work at the site was conducted in accordance with the January 28, 1999 Work Plan and Cost Estimate prepared by Griffin. Approval to proceed with this plan was given in a letter dated February 1, 1999 from Mr. Schwer to Mr. Simendinger.

A. Background Information

One 1,000-gallon gasoline single-walled steel UST was discovered by Wesco on July 15, 1998 during the development of a new gasoline retail station at the subject site. Griffin inspected the permanent closure of this UST on July 16, 1999. The UST was observed to be in poor condition and had been out-of-service for an unknown period of time. According to site representatives, a bank had been located at the site for approximately the last 30 years, prior to which the property was occupied by the Vermont State Police barracks. The installation date of this UST was unknown.

Volatile organic compound (VOC) concentrations, measured with an HNuTM photoionization detector (PID) equipped with a 10.2 eV bulb, ranged from 0.3 parts per million (ppm) to 220 ppm. VOC concentrations decreased within 1-2 feet below the former UST [8-9 feet below surface grade (bsg)]. Subsurface conditions consisted of dry, very dense, consolidated clay and sand. Groundwater was encountered at approximately 5 feet bsg during the excavation.

During the tank closure, Griffin had segregated soils into impacted (>20 ppm VOCs) and non-impacted (<20 ppm VOCs) soils for backfill into the tank pit. Wesco transferred the impacted soils into drums and disposed of them as hazardous waste under proper manifest procedures.

During the UST closure inspection, Mr. Andrew Shiveley of the VT UST Program was present at the subject site. Mr. Shiveley collected samples of groundwater being pumped from an excavation approximately 60 feet east and topographically downgradient of the UST excavation. Mr. Shiveley had reported to Griffin that the samples were analyzed by the VTDEC laboratory for VOCs by EPA Method 8020 and for total petroleum hydrocarbons (TPH) by modified EPA Method 8100. No VOCs or TPH were detected. Griffin indicated that it was not likely that any residual petroleum compounds, which may have been released to the subsurface by the former gasoline UST system, had migrated significantly in the presumed hydraulically downgradient direction from the former UST.

In a letter dated January 13, 1999 to Mr. Simendinger of Wesco, Mr. Schwer of the VTDEC indicated that further investigation was warranted at the subject site. The previous groundwater samples had not been collected directly from the tank pit and no confirmatory soil or groundwater samples had been obtained from that location. The VTDEC requested that one monitoring point in the former UST area, along with groundwater analysis and a receptor survey be completed at the subject site.

II. INVESTIGATIVE PROCEDURES

A. Monitoring Well Installation

On March 4, 1999 one monitoring well was installed by Adams Engineering of Underhill, VT using a truck mounted vibratory drill rig. Drilling and well construction were directly supervised by a Griffin engineer. Soil samples were collected in continuous cores in the boring. Soil samples were screened for VOCs using an HnuTM Model PI-101 PID equipped with a 10.2 eV bulb. Soils were screened using the Griffin Jar/Polyethylene Bag Headspace Screening Protocol, which conforms to state and industry standards. Contaminant concentrations and soil characteristics were recorded in a detailed boring log by the supervising Griffin engineer (see Well Log, Appendix B).

Monitoring well MW-1 was installed adjacent to the northwestern edge of the former UST excavation in order to determine the degree of residual petroleum impacts. Subsurface conditions encountered from zero to approximately 9.5 feet bsg consisted of dense fine to medium-grained sand, underlain by poorly graded sand and gravel to a depth of 12.4 feet bsg. Groundwater was inferred to be located at approximately 5 feet bsg, as indicated from the previous on-site investigation. Concentrations of VOCs decreased with depth and ranged from

38 ppm to 0 ppm. The well was completed to grade and secured with a locking well cap and flush-mounted roadbox. Well construction details can be found in Appendix B.

The monitoring well location and elevation were surveyed on March 4, 1999 for inclusion on the Site Map (Appendix A). Based upon regional surface topography, groundwater in the vicinity of the site is inferred to flow in a northerly direction, towards the Winooski River, located approximately one mile north of the subject site.

B. Groundwater Sample Collection and Analysis

On March 11, 1999 a groundwater sample was collected from MW-1 and submitted to Endyne, Inc. of Williston, Vermont, a state-certified laboratory, under proper chain-of-custody procedures. No free-phase petroleum product was observed on groundwater during the well sampling event. The groundwater sample was analyzed by EPA Method 8021B for VOCs. Toluene, xylenes, 1,3,5-Trimethylbenzene, 1,2,4-Trimethylbenzene, and naphthalene were detected in the sample. The detected levels do not exceed the Vermont Groundwater Enforcement Standards (VGESs). Laboratory results can be found in Appendix C.

The sample was collected according to Griffin's groundwater sampling protocol which complies with industry and state standards. Results from the analyses of the trip blank sample indicate that adequate quality assurance and control (QA/QC) were maintained during sample collection and analysis.

C. Updated Sensitive Receptor Risk Assessment

In July 1998, Griffin conducted a sensitive receptor survey in the area immediately surrounding the site. The subject site is located in a commercial and residential portion of town. Buildings surrounding the site are serviced by municipal water supplied by the City of South Burlington. No wetlands or surface water bodies were observed in the vicinity of the site. Identified sensitive receptors included groundwater, soil, and basements of adjacent buildings. At that time, soil and groundwater were determined to be impacted by the petroleum contamination present at the site. Based on field observations and analytical results, residual petroleum impacts are still present to a limited extent in soil and groundwater beneath the site. To date, Griffin has not observed any impacts to adjacent building basements.

III. CONCLUSIONS

Based on the additional site investigation at the Wesco site, the following conclusions are offered:

1. One monitoring well, MW-1, was installed in the vicinity of the former UST in order to determine the degree of residual petroleum impacts in that area.
2. None of the detected compounds in groundwater exceeded the VGES and no free-phase petroleum product was observed during the sampling event. Groundwater beneath the subject site is inferred to flow in a northerly direction, based on topographic gradients.
3. Based on field observations and analytical results, residual petroleum impacts are present to a limited extent in soil and groundwater beneath the site. To date, Griffin has not observed any impacts to adjacent building basements. There are currently no other known receptors affected by subsurface petroleum contamination at the University Exxon site.
4. With the apparent source removed (i.e., the former gasoline UST), and barring the identification of an additional source, it is expected that, over time, the natural processes of dilution, dispersion, and biodegradation will reduce dissolved contaminant concentrations present in groundwater and adsorbed contamination in soils beneath the University Exxon site.

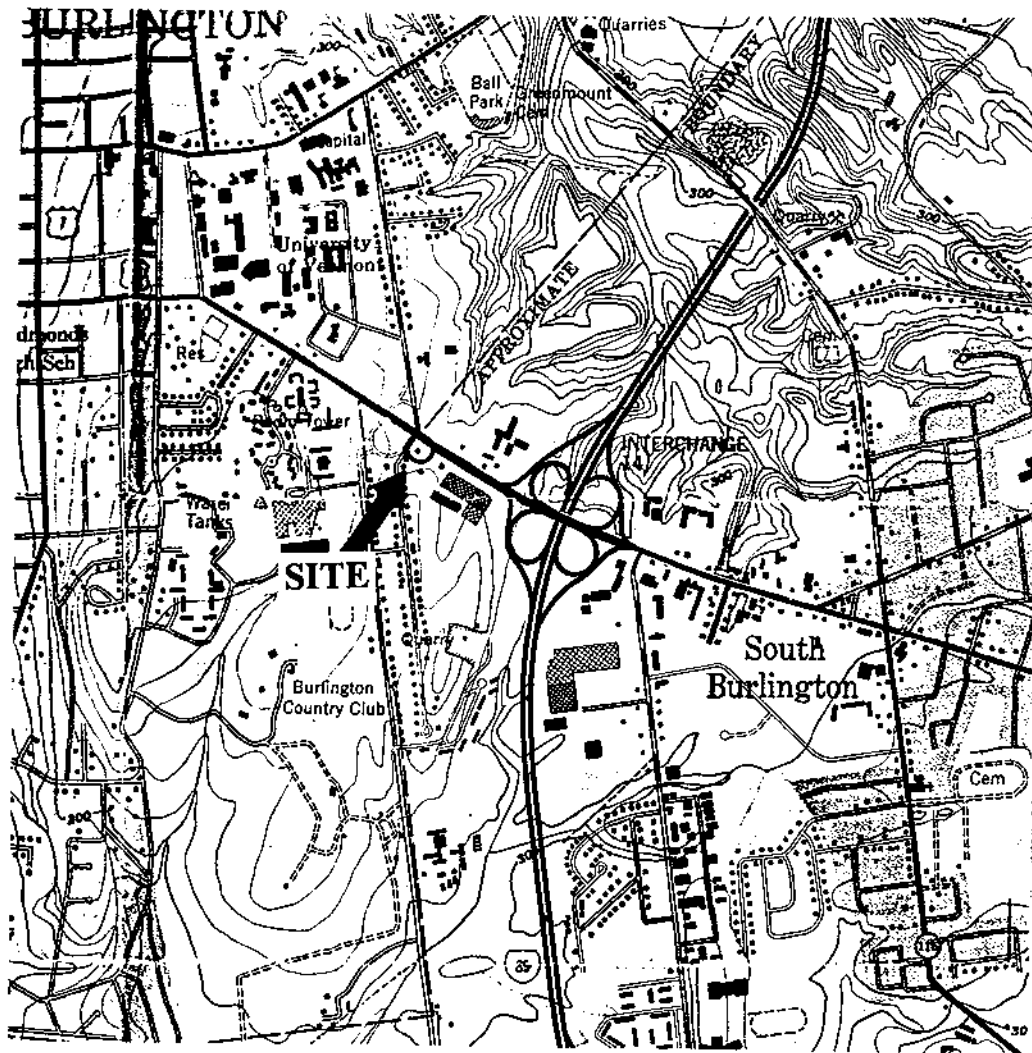
IV. RECOMMENDATIONS

Since the levels of petroleum constituents detected in groundwater in MW-1 are below the appropriate VGES, Griffin does not recommend further investigation or active remediation at this time.

APPENDIX A

MAPS

- 1) SITE LOCATION MAP**
- 2) SITE MAP**



SOURCE: USGS- BURLINGTON, VERMONT QUADRANGLE



JOB #: 79841301

UNIVERSITY EXXON
 WILLISTON ROAD/SPEAR STREET
 SOUTH BURLINGTON, VERMONT
 VTDEC SITE #98-2472

SITE LOCATION MAP

DATE: 3/5/99

DWG.#:1

SCALE: 1:24000

DRN.:SB

APP.:WD

UNIVERSITY OF VERMONT
DORMITORIES



SPEAR STREET

SIDEWALK

SHRUBS

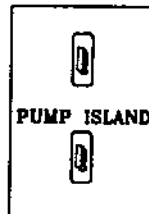
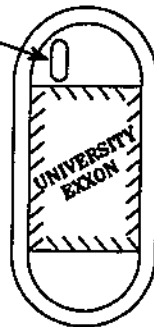
SIDEWALK

APPROXIMATE FORMER
LOCATION OF 1,000
GALLON GASOLINE UST

UNIVERSITY
OF
VERMONT
ATHLETIC
FIELDS

RESIDENTIAL

EXISTING PROPANE
ABOVE GROUND
STORAGE TANK



PAVED

DRIVEWAY AND
PARKING
AREAS

ROUTE 2 / WILLISTON ROAD / MAIN STREET

LEGEND

MW2

MONITORING WELL

U

UTILITY POLE

MOBIL
GASOLINE
STATION

SOURCE: GRIFFIN FIELD SURVEY, 3/4/99



JOB #: 79841301

UNIVERSITY EXXON
WILLISTON ROAD/SPEAR STREET
SOUTH BURLINGTON, VERMONT
VTDEC SITE #98-2472

SITE MAP

DATE: 3/5/99

DWG. #: 2

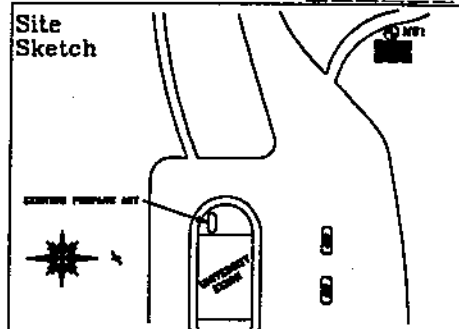
SCALE: 1"=50'

DRN.: SB

APP.: WD

APPENDIX B

WELL LOG

PROJECT UNIVERSITY EXXONLOCATION SOUTH BURLINGTON, VERMONTDATE DRILLED 3/4/99 TOTAL DEPTH OF HOLE 12.5'DIAMETER 2.75"SCREEN DIA. 1.5" LENGTH 9.9' SLOT SIZE 0.010"CASING DIA. 1.5" LENGTH 2.5' TYPE sch 40 pvcDRILLING CO. ADAMS ENGR. DRILLING METHOD VIBRATORYDRILLER GERRY ADAMS LOG BY W. DOEWELL NUMBER MW1

GRIFFIN INTERNATIONAL, INC

DEPTH IN FEET	WELL CONSTRUCTION	NOTES	BLOWS PER 6" OF SPOON & PID READINGS	DESCRIPTION/SOIL CLASSIFICATION (COLOR, TEXTURE, STRUCTURES)	DEPTH IN FEET
0		ROAD BOX			0
1		LOCKING WELL CAP			1
2		CONCRETE			2
3		BENTONITE			3
4		WELL RISER			4
5			0'-5' 38 ppm	SAND WITH FINES (SC)- 30% fines; 65% fine to medium, subrounded sand, 5% fine gravel, moist, olive gray.	5
6		SAND PACK			6
7			5'-9.5' 9 ppm	SAND WITH FINES (SC)- 20% fines; 70% fine to medium sand, 10% fine gravel, moist, light brown/yellowish orange.	7
8		WELL SCREEN			8
9					9
10					10
11		BOTTOM CAP	9.5'-12.5' 0 ppm	POORLY GRADED SAND WITH GRAVEL (SP)- 5% fines; 55% fine to coarse, subangular sand, 40% fine to coarse, subrounded gravel, moist, light brown.	11
12		UNDISTURBED NATIVE SOIL			12
13				BASE OF WELL AT 12.4' END OF EXPLORATION AT 12.5'	13
14					14
15					15
16					16
17					17
18					18
19					19
20					20
21					21
22					22
23					23
24					24
25					25

APPENDIX C

LABORATORY ANALYSIS REPORT



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Griffin International

ORDER ID: 1589

PROJECT NAME: University Exxon/79841301

REF.#: 135,505 - 135,506

REPORT DATE: March 16, 1999

DATE SAMPLED: March 11, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times. All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method. Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

EPA METHOD 8021B--PURGEABLE AROMATICS

CLIENT: Griffin International

DATE RECEIVED: March 12, 1999

PROJECT NAME: University Exxon/79841301

REPORT DATE: March 16, 1999

CLIENT PROJ. #: 79841301

ORDER ID: 1589

Ref. #:	135,505	135,506			
Site:	Trip Blank	MW #1			
Date Sampled:	3/11/99	3/11/99			
Time Sampled:	10:03	1:05			
Sampler:	D. Tourangeau	D. Tourangeau			
Date Analyzed:	3/15/99	3/15/99			
UIP Count:	0	>10			
Dil. Factor (%):	100	100			
Surr % Rec. (%):	91	81			
Parameter	Conc. (ug/L)	Conc. (ug/L)			
MTBE	<10	<10			
Benzene	<1	<1			
Toluene	<1	1.0			
Ethylbenzene	<1	<1			
Xylenes	<1	1.4			
1,3,5 Trimethyl Benzene	<1	2.5			
1,2,4 Trimethyl Benzene	<1	2.9			
Naphthalene	<1	3.1			

Note: UIP = Unidentified Peaks TBQ = Trace Below Quantitation NI = Not Indicated

CHAIN-OF-CUSTODY RECORD

29943

Project Name: <u>UNIVERSITY EXON</u>	Reporting Address: <u>BIRKENHEAD</u>	Billing Address: <u>BIRKENHEAD</u>
Site Location: <u>S. BURLINGTON</u>		
Endyne Project Number: <u>1589</u>	Company: Contact Name/Phone #: <u>ELMER SANDERSON</u>	Sampler Name: Phone #: <u>202-761-1061</u>

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time <u>3-11-99</u>	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
135505	Trip BLANK	H ₂ O	X		10:00	2	40ml		86213	1/12	
135506	Mud #1	H ₂ O	X		13:00	2	40ml		86213	1/12	

Relinquished by: Signature <u>[Signature]</u>	Received by: Signature <u>Tina Desrosiers</u>	Date/Time <u>3-12-99 10:17</u>
Relinquished by: Signature <u>[Signature]</u>	Received by: Signature <u>[Signature]</u>	Date/Time <u>3/12/99 11:17am</u>

New York State Project: Yes ☐ No ☒

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD ₅	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										